# ART. 5. NOTES ON THE GENUS *THERMONIPHAS* (LEPIDOPTERA: LYCAENIDAE)*

By Harry K. Clench
Associate Curator of Insects and Spiders

The excellent revision by M. Henri Stempffer (1956, p. 38) has placed this once badly misunderstood genus on solid footing. Not long ago I undertook a thorough examination of the material in the Carnegie Museum collection in order to identify and arrange it in accordance with his findings. The outcome of this work, in addition to the desired curatorial improvements, was a certain amount of new information which I present here.

## *Thermoniphas* Karsch 1895

Two groups of species may be recognized within this genus, one of them further divisible into two subgroups, but the sharpness of these divisions is blurred by the existence of several intermediate or annectant species. For whatever they may be worth, these groups are characterized as follows:

1. *plurilimbata* group. Females largely white above, without discoidal (cell-end) mark, with fuscous borders and little or no discal or basal blue, the postmedian series of marks absent or very faint. Males diversely patterned above, generally easily identifiable to species on pattern alone.

A. *plurilimbata* subgroup. Males fuscous and white above. Male genitalia with valva long and slender, constricted at or before its middle, with a small distal acuminate process from its ventral edge. Includes: *plurilimbata* Karsch; *stempfferi* sp. nov.; *fumosa* Stempffer.

B. *albocaerulea* subgroup. Males largely bright blue above, with hind wing costal area extensively pure white. Male genitalia without acuminate process on valva, which is proportionately less slender, barely or not at all constricted in middle. Includes: *albocaerulea* Stempffer; *leucocyanea* sp. nov.

2. *micylus* group. Females with pale areas above more or less heavily invaded by blue and occasionally by fuscous as well; postmedian series of marks present, usually heavy; females above with discoidal mark present (occasionally faint). Males uniformly dusky violet blue above with vague, rather narrow fuscous borders, virtually unidentifiable without recourse to the male genitalia, which are varied in form, but different from the configurations of group 1 above. Includes: *micylus* Cramer; *distincta* Talbot; *togara* Plötz; *alberici* Dufrane; *fontainei* Stempffer; *kigezi* Stempffer.

The "difficult" species are three: 1. *fumosa* Stempffer which, though placed above in group 1A, is the only member with the discoidal mark below and traces of postmedian spots on the fore wing above in the female. 2. Especially, *caerulea* Stempffer, which can not be assigned to either of the above groups. It has male genitalia absolutely conformable with those of subgroup 1A, and as in group 1 it lacks the postmedian spots on the fore wing of the female above; yet it has in the female a well developed discoidal mark on both surfaces of both wings and the fore wing is shaded basally with bluish; all as in

*Published pursuant to work as collaborating investigator on National Science Foundation grant No. G-14048.



Submitted for publication, May 22, 1961
Issued October 27, 1961

group 2. Likewise the male coloration above, though brighter blue, is more like that of group 2 than that of subgroup 1B. 3. Finally, *bibundana* Grünberg is too poorly characterized to place in either group and remains unknown to me as it was to Stempffer.

**Pattern key to males**

*Note: bibundana* Grünberg and *distincta* Talbot, are not included.

1. a. Fore wing above with some white in disc; no blue above ..... 2
   b. No white in disc; fore wing blue/violet with fuscous borders ..... 4
2. a. Hind wing above largely fuscous; fore wing white does not reach inner margin (though it may reach 2A); discoidal mark usually present on fore wing above ..... *fumosa* Stempffer
   b. Hind wing above extensively white; white of fore wing reaches inner margin broadly; no discoidal mark on fore wing above ..... 3
3. a. Fore wing above, white reaches costa ..... *plurilimbata* Karsch
   b. Fore wing above, white ends at $M_2$ or $M_1$, leaving costa broadly fuscous ..... *stempfferi* sp. nov.
4. a. Hind wing above with costal area broadly pure white, reaching inward to costal edge of cell and to $M_1$ or $M_2$ ..... 5
   b. Hind wing above blue or fuscous to costa ..... 6
5. a. Fore wing below, postmedian series of marks abruptly absent or very faint below $M_3$; hind wing above with spot on costa at 2/3 very large and dark ..... *leucocyanea* sp. nov.
   b. Fore wing below with postmedian series of marks continuous to 2A; coastal spot on hind wing above fainter ..... *albocaerulea* Stempffer
6. a. Upper side dark blue, without marked violet tinge; hind wing marginal markings lost in general infuscation of border area ..... *caerulea* Stempffer
   b. Upper side blue, distinctly violet tinged; usually some traces of the marginal complex are visible on the hind wing above, often the complete complex ..... 7
7. a. Hind wing above with the subterminal line and the terminal row of spots separated by a row of sharp white crescents; terminal spot in $Cu_1$-$Cu_2$ almost as deep as wide ..... *alberici* Dufrane
   b. Hind wing above with subterminal line faint to absent; the crescents between it and terminal row of spots grayish or bluish, never sharp and clear; terminal spot in $Cu_1$-$Cu_2$ always much wider (vein to vein) than deep (base to termen) ..... 8
8. The following species run here and can not safely be discriminated except by the male genital structures: *micylus* Cramer; *togara* Plötz; *fontainei* Stempffer; *kigezi* Stempffer.

**Pattern key to females**

*Note: bibundana, distincta, stempfferi* not included: *togara* included only with considerable doubt.

1. a. Fore wing above without discoidal (cell-end) mark; upper side largely white, with little or no blue basally; fore wing above with postmedian series of marks absent or very faint ..... 2

b. Fore wing above with a spot, often thin and linear, at cell-end (exceedingly faint in *kigezi*); upper side often heavily infuscated, nearly always with some blue or green; postmedian series of marks usually well developed ..... 5

2. a. Hind wing below with the terminal spot in $Cu_1$-$Cu_2$ large and black, with much metallic blue scaling within ..... 3
   b. Hind wing below, this spot small, not much larger than the terminal spots costad of it, without included blue scaling or with a few scales only ..... 4

3. a. Fore wing below with postmedian series of marks abruptly faint below $M_3$ and absent in $Cu_2$-2A ..... *leucocyanea* sp. nov.
   b. This line well developed to 2A ..... *albocaerulea* Stempffer

4. a. Fore wing above with faint traces of postmedian series of marks in $Cu_1$-$Cu_2$-2A; hind wing above with a large spot between Sc and Rs near costa ..... *fumosa* Stempffer
   b. Fore wing above without any trace of postmedian series; hind wing above without large costal spot (though the one on under side shows through by transparency) ..... *plurilimbata* Karsch

5. a. Fore wing above without postmedian spot row ..... *caerulea* Stempffer
   b. This series present, at least partially ..... 6

6. a. Fore wing above, spot at cell-end short and thick, not reaching as far as base of $M_3$ ..... 7
   b. This spot thin, linear, reaching entirely across cell-end to base of $M_3$ ..... 8

7. a. Fore wing above, the postmedian spot in $Cu_2$-2A is absent or much fainter than those costad ..... *kigezi* Stempffer
   b. This spot present, as heavy as those costad ..... *fontainei* Stempffer

8. a. Fore wing above in certain lights rather brilliantly greenish iridescent in the blue areas (when, rarely, this is absent, both wings are fuscous and white with no bluish at all); hind wing above the marginal complex has very prominent white lunules between terminal spots and subterminal line ..... *alberici* Dufrane
   b. Fore wing above never with any such brilliant iridescence, the blue shading always present but dull; the white lunules in marginal complex usually dull, grayish ..... 9

9. a. Hind wing above with area beyond cell-end whitened; hind wing above with costa whitened; lunules in marginal complex bright ..... *togara* Plötz?
   b. Fore wing above with area beyond cell-end washed with blue or infused with fuscous, never whitened; hind wing above with costal area fuscous without whitening; lunules in marginal complex dull ..... *micylus* Cramer

**Key to males, genital structures**

*Note: bibundana* Grünberg not included.

1. a. Valva ending bluntly, without long acuminate process ..... 2
   b. Valva ending in a long acuminate process, or with such a process arising from it near the end ..... 4

2. a. One of the largest setae on the valva arising from valva well before its end, not much thicker than the next largest seta ..... 3
   b. All setae from very near the distal end of valva, the largest two or three times as thick as the next largest ..... *fontainei* Stempffer
3. a. Valva with sides subparallel, apex rounded; five large setae in terminal group ..... *albocaerulea* Stempffer
   b. Valva with sides distinctly divergent distally, apex truncate; seven setae in terminal group ..... *leucocyanea* sp. nov.
4. a. Acuminate process of valva nearly as long as valva itself, which is short and broad; the process arising terminally; vinculum with a large lobate expansion on either side; penis distinctly sinuate ..... *alberici* Dufrane
   b. Acuminate process much shorter than the valva which is usually rather long and slender; the process usually arises from ventral border before end; vinculum usually but little expanded; penis not sinuate ..... 5
5. a. Acuminate process of valva rising from a much expanded base barely beyond middle of valva, then abruptly angled distad ..... *micylus* Cramer
   b. Acuminate process arising directly from valva well beyond middle, not strongly angled ..... 6
6. a. One of the terminal setae clearly larger and longer than the others ..... 8
   b. No single seta of the terminal group clearly larger and longer than the others ..... 7
7. a. Four setae in terminal group, subequal, one arising at base of acuminate process; anellus arms diverging almost immediately from a very short stalk ..... *caerulea* Stempffer
   b. Of the setae in terminal group, two are clearly longer than the others and arise subterminally; three others are shorter but in size grade into other still shorter setae; none arises at base of acuminate process; anellus arms diverging from end of a distinct stalk which is as slender as basal parts of arms ..... *stempfferi* sp. nov.
8. a. Two setae in terminal group in addition to the dominant one; valva proportionately broad (about half as broad as long) ..... *togara* Plötz
   b. Three or more setae in addition to dominant one ..... 9
9. a. Dominant seta arising basad of origin of acuminate process ..... *kigezi* Stempffer
   b. Dominant seta arises distad of origin of this process ..... 10
10. a. Dominant seta arises well basad of end of valva; four long setae in addition to it ..... *distincta* Talbot
    b. Dominant seta arises terminally or very nearly; three long setae in addition to it ..... 11
11. a. Acuminate process not, or barely, surpassing tip of valva; no seta from its base ..... *fumosa* Stempffer
    b. Acuminate process distinctly surpassing tip of valva; a seta arising at its base ..... *plurilimbata* Karsch

*Thermoniphas plurilimbata* Karsch 1895

A female from Luluabourg, Kaisai, Congo (*leg.* Seydel) in the museum collection probably represents the nominate subspecies, while a male from

Medje, Oriental, Congo (reported by Holland 1920, p. 234) is referable to ssp. *rutshurensis* Joicey & Talbot, though the fuscous vein-streaking of the hind wing is poorly developed. A possibly more consistent difference between the two subspecies may be the thickness of the terminal spots on the hind wing above and below. These spots are large and round in the Luluabourg female, small and flattened—almost bar-like—in the Medje male as well as in Joicey & Talbot's figure (1921, plate 16, figure 96).

*Thermoniphas stempfferi* sp. nov. (Plate 1, Fig. 4, 7).

*Male.* Upper side. Fore wing white with a broad (ca. 1.5 mm.), rather sharp fuscous border the whole length of the costa, including base of cell and base of inner margin; apex and termen also broadly (ca. 2 mm.) edged with fuscous. Hind wing white, fuscous in extreme base; the basal small black spot in interspace between Sc and cell shows through faintly by transparency; farther distad, between Sc and Rs, is a large quadrate black spot as wide as the interspace and about half as thick; terminal area broadly (ca. 2 mm.) fuscous with terminal spots large and round, ringed narrowly but sharply with white. Tail at $Cu_2$ longer than distance between ends of veins $Cu_1$ and $Cu_2$. Under side. Both wings white, without discoidal (cell-end) streak on either vein. Fore wing with marginal complex (terminal line, terminal spots, subterminal line) as usual save that subterminal line is proportionately heavier and the whole complex is lost apically in a brown shade; postmedian series parallel to termen though the segments below $M_3$ are disjunct and diagonal; this series much displaced distad, lying closer to marginal complex than the complex is thick and lost apically in the brown shade, of which it forms the approximate basal edge. Hind wing with marginal complex typical, terminal spots in Rs-$M_1$ and $Cu_1$-$Cu_2$ larger than the others, the latter black instead of brown, with a few metallic scales within. Postmedian series as on fore wing displaced distally, lying closer to the marginal complex than the complex is thick, parallel to termen in general contour, but irregular in detail costad of $M_3$ and the segments disjunct below $M_3$. About two-thirds out in costal area a large quadrate black spot in interspace Sc-Rs as wide as the interspace and nearly as thick. At about 1/4 from base another smaller spot in the same interspace. No spot in cell and none in basal part along inner margin.

*Male genitalia* (Fig. 1). Dorsal structures conforming to the general type in the genus; vinculum with an abrupt rounded expansion on either side just above the valvae. Valva proportionally a little thicker than in the other members of the *plurilimbata* subgroup with acuminate process long, the part beyond distal end of valva about one-third as long as the whole valva; distal end of valva with two long setae arising subterminally and three, much shorter, arising terminally, grading in size into the normal valval setae. Anellus Y-shaped, with a rather long slender stalk, about half as long as width of valva at its narrowest point, the arms diverging first at an acute angle, then, because of a bend in each arm, obtusely, their distal ends broad, lamellar, the edges more or less diffuse.

*Length of fore wing:* 12.5 mm.

*Holotype,* male, Batanga, Cameroun, from the Holland collection, no further data; male genitalia slide no. C-717. C. M. Ent. type series no. 392.

*Remarks.* A most distinctive species, coming perhaps closest to *plurilimbata*

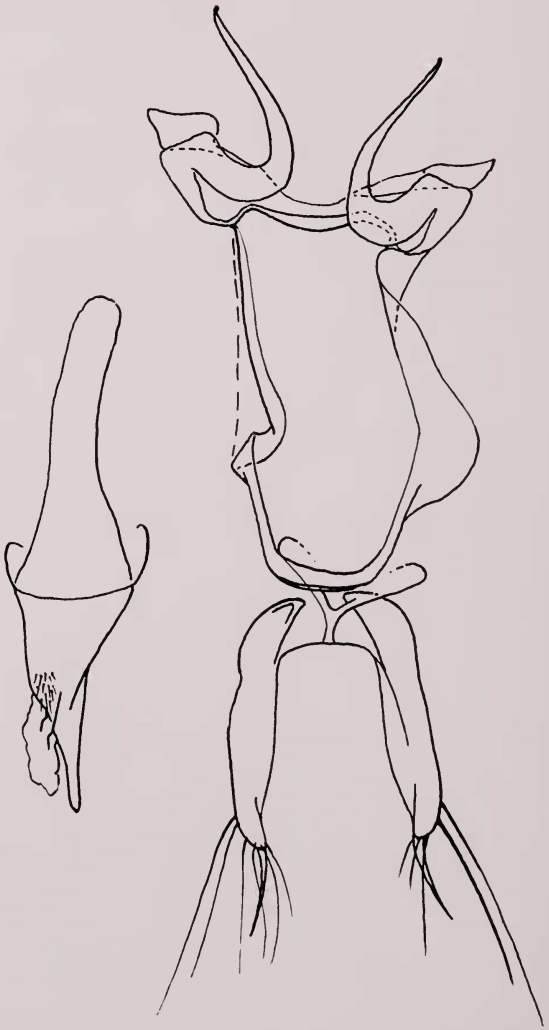


Fig. 1. *Thermoniphas stempfferi* sp. nov., male genitalia (holotype); penis on left

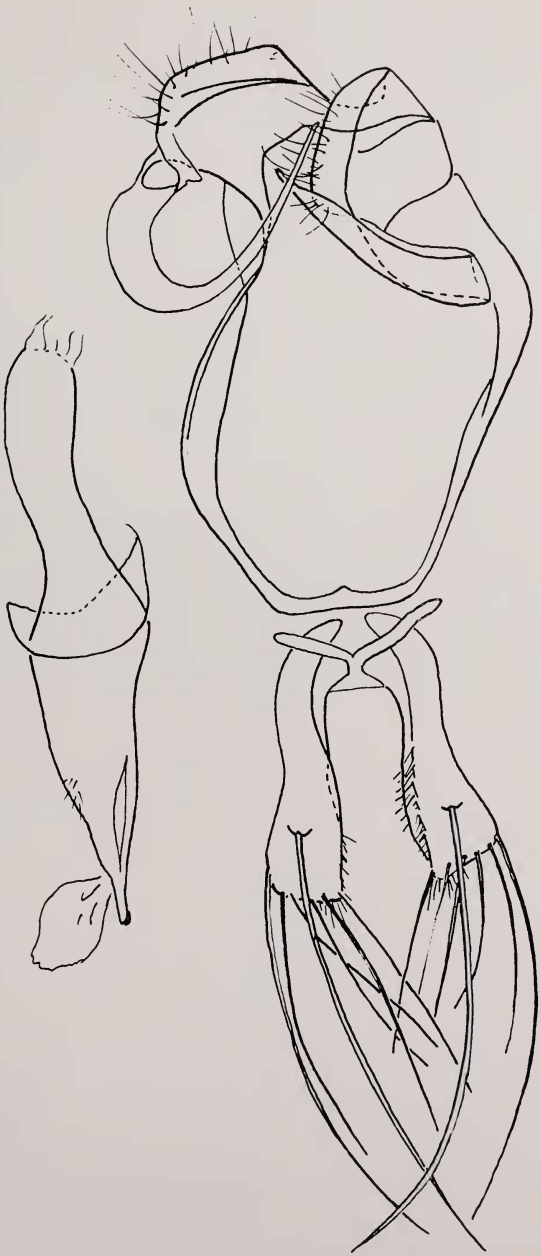


Fig. 2. *Thermoniphas leucocyanea* sp. nov., male genitalia (holotype); penis on left

Karsch in appearance, but immediately distinguishable from it by the broadly fuscous fore wing costa, the hind wing with fuscous in base, prominent black spot on costa and more solidly infuscate border. On the under side the brown apical shade of the fore wing and absence of the basal spots in cell and along inner margin of the hind wing are unique in the genus, while the postmedian line is found displaced so far distad only in *leucocyanea* sp. nov., though an intermediate condition occurs in most of the other members of the *plurilimbata* group, including *caerulea*.

It is a pleasure to dedicate this distinctive species to M. Henri Stempffer, in partial recognition of his years of careful, accurate work on African Lycaenidae.

*Thermoniphas fumosa* Stempffer 1952 (Plate 1, Fig. 1, 3).

Specimens are at hand from the following localities, considerably extending its known range (Nigeria, N. Cameroun, Congo).

Cameroun: Batanga; Efulen; Lolodorf (including 2 females); Efufup, 90 miles E. of Metet; Ekuf, 35 miles E. of Lolodorf.

Gabon: Talaguga, Ogové R.

There is a certain amount of variation among these specimens, chiefly in the extent of the white patches on the fore wing and the degree of development of the fore wing discoidal mark above (almost absent, for example, in both males from Batanga which, further, also have the fore wing termen more rounded and the markings below fainter. Plate 1, Fig. 2). Stempffer (1952, p. 119) does not mention the faint traces of the postmedian series visible in the females on the fore wing above posterior to $M_3$, which show quite distinctly in our two specimens (cf. Plate 1, Fig. 3).

*Thermoniphas leucocyanea* sp. nov. (Plate 1, Fig. 5, 6, 8, 9).

*Male.* Upper side of both wings bright blue, barely tinged with violet. Fore wing with a fuscous border, basally diffuse and extending basad briefly on the veins, thicker at apex. Costa with a trace of purer, paler blue. Hind wing with costal area inward to cell and $M_1$ pure white save for a distal patch of blue in Rs-$M_1$, and a small amount of white also in basal half of $M_1$-$M_2$; two-thirds out along costa a large black patch in Sc-Rs. Margin narrowly fuscous with faint traces of marginal spots. Under side markings faintly visible by transparency. Tail at $Cu_2$ about as long as distance between ends of veins $Cu_1$ and $Cu_2$. Under side of both wings pure white, the discoidal mark on fore wing absent, on hind wing indicated only very faintly. Fore wing with marginal complex about typical save that the subterminal line is less crenulate. Postmedian series displaced considerably distad (closer to marginal complex), but present only costad of $M_3$. Hind wing with the usual small basal and large distal black spots in Sc-Rs, the latter as wide as the interspace; a small black spot in cell but none along basal part of inner margin. Marginal complex typical, the terminal spots rather large and round, those in Rs-$M_1$ and $Cu_1$-$Cu_2$ considerably larger than the others, the latter black with a distal curved line of metallic blue within. Postmedian series complete, of thin brown bars as usual, and, as in fore wing, displaced far distad.

*Female.* Upper side of both wings pure white without discoidal marks. Fore wing with base and basal part of costa bluish gray, becoming thin to-

wards middle of costa where a broad fuscous apical-terminal border begins, of the same general shape and thickness as in *plurilimbata* and females of *fumosa,* its inner edge prominently dentate, the points on the veins. Hind wing with a prominent large black spot between Sc and Rs two-thirds out along costa; marginal complex large, the terminal spots round, that in $Cu_1$-$Cu_2$ especially so; the postmedian series distinct, very close to marginal complex and both are fused and indistinct in a marginal fuscous shade in Rs-$M_1$, from the postmedian series to the termen; base of wing lightly dusted with black. Under side as in the male with these exceptions: the fore wing postmedian series present faintly in $M_3$-$Cu_1$-$Cu_2$; the large black marginal spot in $Cu_1$-$Cu_2$ larger and more heavily marked with blue; along inner margin, about one-third out from base, a small black spot present.

*Male genitalia* (Fig. 2). Dorsal structures as typical of the genus. Valva sinuous, regularly widening distad, the end truncate, diagonal to axis of valva; no acuminate process; one large seta arising at about three-fourths of valva and a distal series of six slightly smaller setae. Anellus Y-shaped, on a short stalk, the arms straight, long, forming an angle of about 120°.

*Length of fore wing:* male, 15.0 mm.; female, 15.5 mm.

*Holotype,* male, Lolodorf, Cameroun, Apr. 6, 1920 (A. I. Good); C. M. Acc. 6552, male genitalia slide C-719. Allotype, female, same locality and collector, Oct. 31, 1913, C. M. Acc. 5263. C. M. Ent. type series no. 393.

*Remarks.* Very closely allied to *albocaerulea* Stempffer, differing in the following particulars: heavier apical black spot on hind wing above in both sexes; more distally displaced postmedian series on both wings below (visible on the hind wing above in the female as well); the abrupt disappearance (male) or faintness (female) of this series below $M_3$ on fore wing below, and its much reduced thickness on the hind wing; absence of the discoidal mark in both sexes on the fore wing below and in the female on the hind wing as well. The male genitalia have the anellus arms longer and diverging at a much greater angle; the valva differs in its distal regular increase in width and in having six distal setae (in addition to the dominant one) instead of four.

There is a second female in the collection, from Talaguga, Ogové R., Gabon, which differs in several ways from the allotype. On the hind wing above there is almost no white between the subterminal line and the postmedian series, the whole being fuscous with the white lunules in the marginal complex concomitantly thinner as well. Below, the postmedian series on the fore wing is continued to 2A, though very faintly, the apical two or three bars are much thicker and the whole series lies still closer to the subterminal line, fusing with it apically. On the hind wing this series is also farther distad, the bars somewhat heavier, apically fusing with the subterminal line. Without further material it is impossible to say what significance, if any, should be attached to these differences.

### *Thermoniphas micylus* Cramer 1780

In the typical subspecies (Plate 1, Fig. 11, 14) the blue of the males is dark, the border heavy. Females are likewise dark, more infuscated, showing a virtually entirely fuscous hind wing and on the fore wing the blue dull, dark,

without white, appearing to overlay a fuscous ground. Beneath, the postmedian series of the fore wing is very disjunct and strongly curved apically. Stempffer records the nominate subspecies from Liberia and Togo; also, Nigeria and Cameroun, but see below for discussion of material from the latter two regions. Specimens are at hand from:

Liberia: Harbel, Ganta, Yendamalahoun, Bomi Hills, Zorzor (all *leg.* R. M. Fox; in all, a long series of both sexes).

Ghana: Accra (short series of males only).

*Thermoniphas micylus colorata* Ungemach 1932

Stempffer (1956, p. 41) notes that females of typical *micylus* from southern Nigeria and Camerouns are paler and more extensively bluish than in specimens from farther west. Our material bears this out completely (cf. Plate 1, Fig. 12, 15). In addition, our few specimens, especially from Cameroun (where it seems to be rare and local, in contrast to its abundance in Upper Guinea), show the postmedian series below to be much less irregular and the males with a distinctly less infuscate border. In these traits these specimens agree with Stempffer's remarks (p. 42) on *colorata*. Females, further, agree rather well with Ungemach's colored figure (1932, p. 97, plate 2, figure 14) of *colorata,* which he described from Ethiopia and which Stempffer records as well from Tanganyika. In spite of the fact that I have seen no material from these eastern areas, and that there is currently a large hiatus between them and the Nigerian and Camerouns records, I am nonetheless inclined to place the latter with *colorata*. Certainly they are close, and they appear to be closer to it than to nominate *micylus*. Specimens in the museum collection are from:

S. Nigeria: Old Calabar (3 males, 1 female); Bonny (1 male).

Cameroun: Lolodorf (1 male, 1 female); Ngobilo (1 male, 1 female).

The presence, in the Nigeria-Cameroun region, of a form more closely allied to relatives in Ethiopia and Tanganyika than to those in the Liberia-Ghana region, finds interesting parallels in other butterflies. The eastern riodinid, *Abisara neavei* Riley, has a subspecies, *latifasciata* Riley, in the mountains that lie along the Nigeria-Cameroun border, while in these same mountains fly (subspecifically undifferentiated) the nymphalid *Issoria excelsior* Butler (otherwise known only from the Ruwenzori) and the lycaenids *Uranothauma antinorii* Oberthur and *U. nubifer* Trimen, both of which are otherwise confined to eastern Africa from Rhodesia or Natal north to Ethiopia. *Spindasis banyoana* Bethune-Baker (1926, p. 398) was described from these same mountains and later (Carpenter 1935, p. 392, 415) recorded from Ethiopia, Uganda, and Kavirondo.

That the pluvial periods of the Pleistocene created conditions permitting the eastward movement of certain West African elements is well known. The foregoing suggests that they may also have permitted the westward movement of certain eastern African elements, although apparently on a more modest scale and probably over a different route (cooler, drier). The close systematic relationship of these western relics to their eastern counterparts—they are either undifferentiated or at most slight subspecies—implies that their separation from the parent stock took place in the relatively recent past, in all probability in the last glacial (pluvial) stage.

*Thermoniphas togara* Plötz 1880 (*sensu* Stempffer 1956)

This species appears to be rare in Cameroun, whence we have only two males from Mekas and a female (identity uncertain) from Metet.

*Thermoniphas alberici* Dufrane 1945

By far the commonest species of the genus in Cameroun and Gabon. Among the long series in the museum collection are several pairs taken *in copula,* making it possible to associate the sexes with a high degree of confidence. The females of these pairs agree with one another and with a large number of additional females associated with males (genitalically determined) both by numbers and by localities. Unfortunately these are not at all the same as the female (from N'Long, Cameroun) selected as "neallotype" by Stempffer (1956, p. 46). This latter, indeed, appears to be *kigezi* Stempffer (See below), leaving the true female of *alberici* still to be described:

*Female* (Plate 1, Fig. 10, 13). Upper side white. Fore wing with a narrow discoidal (cell-end) bar completely crossing the cell; apex with a large quadrate fuscous patch, its inner edge approximately delimited by the postmedian series of spots which is thick (segment in $M_3$-$Cu_1$ usually at least as thick as wide) and well developed to 2A; also from the apical patch runs a thick fuscous border with a white bar-like inclusion in each interspace between $M_2$ or $M_3$ and 2A. Veins narrowly fuscous between this border and postmedian series and a little basad of the latter as well. Base of wing almost as far as cell-end shaded with fuscous, overlaid with a brilliant greenish blue iridescence only visible in certain lights. This iridescence lies below $M_2$ and midline of cell and extends from near base to the postmedian series. Hind wing with a thin bar at cell-end; postmedian series well developed, as thick as, or a little thicker than, its fore wing counterpart; marginal series well developed, the terminal spots nearly round, clearly and sharply ringed with white. Costa inward to cell and Rs fuscous, with under side markings visible by transparency. Under side as in male, the markings perhaps a little heavier.

This is the only species in the genus whose female shows this brilliant iridescence on the fore wing, which rarely may be only feebly developed.

There are two females from Efulen, Cameroun, in the collection which I somewhat hesitantly assign here. They differ from the above description in lacking any trace of this iridescence. They also lack the duller bluish basal shading of females of the other members of the *micylus* group, giving them a very distinctive fuscous-and-white look.

Specimens of *alberici* in the museum collection are from these localities (* =genitalically determined):

*Fernando Po.

Cameroun: *Lolodorf (including one pair *in cop.*); *Batanga; Efulen; Elat; Bipindi; Ubenji; Asandik (83 miles SE. of Efulen).

Gabon: *Kangwe, Ogové R. (including three pairs *in cop.*).

French Congo: Evuni [not located].

*Thermoniphas fontainei* Stempffer 1956

To the localities (all in the Congo) recorded by Stempffer may be added the following, represented in the Carnegie Museum collection (*=genitalically determined):

Cameroun: Elat (1 female); Tibati (1 female).

Gabon: *Kangwe, Ogové R. (series).
Not located: *Igenja (A. C. Good); *Wambaka (A. C. Good).

*Thermoniphas kigezi* Stempffer 1956

*Thermoniphas alberici* Dufrane ♀: Stempffer 1956. p. 45, plate 3, figures 7, 8.

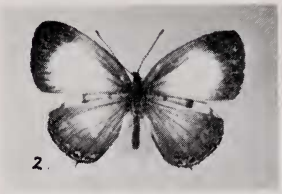
From Lam, Cameroun (A. I. Good, Jan. 16, 1920) there are only two specimens of *Thermoniphas* in the museum collection, one a male, the other a female. The male has been determined genitalically to be *kigezi* Stempffer, previously known only from the type locality of Kayonga, Kigezi, Uganda. The female is distinctive in being extensively whitish above, with $Cu_2$-2A segment of the postmedian series on the fore wing virtually absent, in sharp contrast to the well developed remainder of the series. These same traits are present also in a single female from Metet, Cameroun. Both these specimens agree well with Stempffer's figures of female *kigezi* save that the discoidal mark of the fore wing above is well developed though short and not reaching the base of $M_3$. Stempffer's figure and description of the "neallotype" of *T. alberici,* also from Cameroun, agrees with these Cameroun females of *kigezi* and accordingly differs from the true female of *alberici,* as discussed above.

It is possible that a racial difference exists in the distinctness of the fore wing discoidal mark above in the female; nearly absent in Uganda, rather heavy in Cameroun.

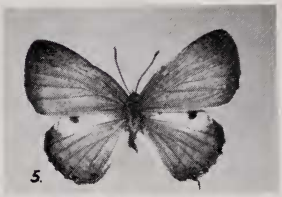
## EXPLANATION OF PLATE 1

Fig. 1. *Thermoniphas fumosa* Stempffer, ♂. Talaguga (near Kangwe) Ogové R., Gabon.
Fig. 2. *Thermoniphas fumosa* Stempffer, ♂. form?—Batanga, Cameroun.
Fig. 3. *Thermoniphas fumosa* Stempffer, ♀. Lolodorf, Cameroun.
Fig. 4. *Thermoniphas stempfferi* sp. nov. holotype ♂.
Fig. 5. *Thermoniphas leucocyanea* sp. nov. holotype ♂.
Fig. 6. *Thermoniphas leucocyanea* sp. nov. allotype ♀.
Fig. 7. Under side of specimen shown in Fig. 4.
Fig. 8. Under side of specimen shown in Fig. 5.
Fig. 9. Under side of specimen shown in Fig. 6.
Fig. 10. *Thermoniphas alberici* Dufrane, ♀. Benito, Spanish Guinea.
Fig. 11. *Thermoniphas micylus micylus* Cramer, ♂. Harbel, Liberia.
Fig. 12. *Thermoniphas micylus colorata* Ungemach, ♂. Ngobilo, Cameroun.
Fig. 13. Under side of specimen shown in Fig. 10.
Fig. 14. *Thermoniphas micylus micylus* Cramer, ♀. Harbel, Liberia.
Fig. 15. *Thermoniphas micylus colorata* Ungemach, ♀. Ngobilo, Cameroun.

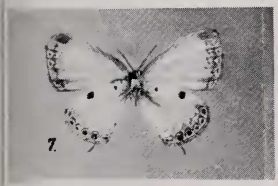
Plate 1. (Photographs by R. M. Fox)

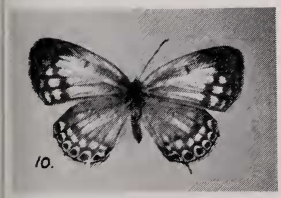


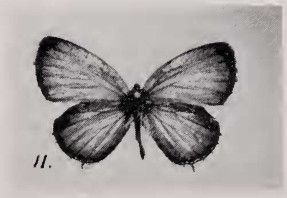













## REFERENCES

**Bethune-Baker, G. T.**

1926. Descriptions of new species of Rhopalocera from the Ethiopian region. Annals and magazine of natural history, (9) v. 17, p. 384-402.

**Carpenter, G. D. H.**

1935. The Rhopalocera of Abyssinia, a faunistic study. Transactions of the Royal Entomological Society of London, v. 83, p. 313-447, 18 text figures. Plates 8-13.

**Holland, W. J.**

1920. Lepidoptera of the Congo, being a systematic list of the butterflies and moths collected by the American Museum of Natural History Congo Expedition, together with descriptions of some hitherto undescribed species. Bulletin of The American Museum of Natural History, v. 43, p. 109-369, 9 text figures. Plates 6-14.

**Joicey, J. J. and G. Talbot**

1921. New forms of Rhopalocera, *in* New Lepidoptera collected by Mr. T. A. Barns, in east central Africa. Bulletin of the Hill Museum, v. 1, p. 44-103, Plates 5-16.

**Stempffer, H.**

1952. Contribution à l'étude des Lycaenidae [Lep.] de la faune éthiopienne. Bulletin de la Société entomologique de France, 1952, p. 114-121, 2 figures. Plate 1.

1956. Contribution à l'étude des Lépidopterès Lycaenidae de l'Afrique equatoriale. Annales du Musée Royal du Congo Belge (Série in 8°), Sciences zoologiques, v. 49, p. 1-54, 31 figures. Plates 1-3.

**Ungemach, H.**

1932. Contribution a l'étude des Lépidoptères de l'Abyssinie, pt. 1, Rhopalocères. Mémoires de la Société des Sciences Naturelles de Maroc, no. 32, p. 1-122. Plates 1-2.